

Appl. No. : 10/763,897  
Filed : January 23, 2004

### AMENDMENTS TO THE CLAIMS

Please amend Claims 1-3, 7, 10 and 11 as follows. Insertions are shown underlined while deletions are ~~struck through~~. Please cancel Claims 4-6 and 8-9. Please add Claims 12-17.

1 (currently amended): An apparatus for trapping a micro-object~~crystal~~, comprising:  
a base;

a gripping mechanism for gripping a micro-object~~crystal~~ in a droplet placed in a predetermined location on said base, said gripping mechanism comprising a movable gripping member for gripping the crystal in the droplet; and

a trapping mechanism for trapping the micro-object~~crystal~~ gripped by said gripping mechanism, said trapping mechanism comprising a movable trapping loop for trapping the crystal gripped by the gripping member in the droplet, said loop being insertable in the droplet and configured to retain liquid of the droplet therein by closing the loop with the liquid using its surface tension when separated from the droplet; and

a controller for controlling and coordinating movement of the gripping member and movement of the loop to grip the crystal with the gripping member inside the loop in the droplet and to separate the crystal from the droplet together with the gripping member and the loop, thereby retaining the crystal inside the loop with liquid of the droplet.

2 (currently amended): The apparatus as recited in Claim 1, further comprising a lifting ~~means-device~~ on said base for separating from the droplet the micro-object~~crystal~~ gripped by said gripping mechanism and trapped by said trapping mechanism.

3 (currently amended): The apparatus as recited in Claim 1, further comprising a means ~~device~~ on said base for observing and displaying the trapped condition of the micro-object~~crystal~~.

4-6 (canceled):

7 (currently amended): ~~An~~ The apparatus for trapping a micro-object ~~as recited in claim 1,~~ further comprising:

a base;

a feed mechanism for placing a droplet containing micro-object~~crystals~~ in a predetermined location on said base;

~~a gripping mechanism for gripping the micro-object in the droplet; and~~

a trapping mechanism for trapping the micro-object gripped by said gripping mechanism;

wherein said trapping mechanism includes a trapping means for trapping the micro-object, a moving means for moving said trapping means and an installation means for installing said trapping means on said moving means.

8-9 (canceled):

10 (currently amended): A method for trapping a micro-object~~crystal~~, comprising the steps of:

placing a droplet containing micro-object~~crystals~~ in a predetermined location;  
gripping one of the micro-object~~crystals~~ in the droplet by a gripping member;  
placing a loop into the droplet and positioning the loop to enclose ~~trapping the~~ micro-object~~crystal~~ being gripped inside the loop, said loop being configured to retain liquid of the droplet therein by closing the loop with the liquid using its surface tension when separated from the droplet; and

separating the micro-object~~crystal~~ being trapped-placed inside the loop from the droplet while maintaining the position of the micro-crystal being gripped by the gripping member and enclosed by the loop, thereby retaining the crystal inside the loop with liquid of the droplet with surface tension of the liquid.

11 (currently amended): The method as recited in Claim 10, further comprising observing and displaying at least said steps of gripping, ~~trapping~~placing/positioning, and separating.

12 (new): An apparatus for trapping a micro-crystal, comprising:

- (i) a base;
- (ii) a gripping mechanism for gripping a micro-crystal in a droplet placed in a predetermined location on said base, said gripping mechanism including
  - a gripping device having a gripping member for gripping the crystal in the droplet, and
  - a first moving device for moving said gripping device; and
- (iii) a trapping mechanism for trapping the micro-crystal gripped by said gripping mechanism, said trapping mechanism including

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a trapping device for trapping the crystal, said trapping device having a loop configured to be inserted into the droplet and to place the crystal gripped by the gripping member in an area inside said loop,

a second moving device for moving the trapping device, and  
an installation device for installing the trapping device on the second moving device,

wherein said apparatus for trapping the crystal is configured to trap and retain the crystal in the area inside the loop with surface tension of the droplet solution therein by separating the crystal from the droplet together with the gripping member and the loop in a condition where the crystal is trapped in the area inside the loop while being gripped by the gripping member.

13 (new): The apparatus as recited in Claim 12, further comprising a lifting device on said base for separating from the droplet the micro-crystal gripped by said gripping mechanism and trapped by said trapping mechanism.

14 (new): The apparatus as recited in Claim 12, further comprising a device on said base for observing and displaying the trapped condition of the micro-crystal.

15 (new): The apparatus for trapping the crystal according to claim 12, further comprising:

a feed mechanism for placing a droplet containing crystals in a predetermined location on said base

16 (new): A method for trapping a micro-crystal, comprising:

placing a droplet containing micro-the crystals in a predetermined location;

gripping one of the micro-crystals in the droplet;

inserting a loop into the droplet and placing the crystal being gripped by a gripping member in an area inside the loop; and

separating the micro-crystal being placed in the area inside the loop from the droplet together with the gripping member and the loop in a condition where the crystal is placed in the area inside the loop while being gripped by the gripping member thereby retaining and trapping the crystal in the area inside the loop with surface tension of the droplet solution therein.

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17 (new): The method as recited in Claim 16, further comprising observing and displaying at least said steps of gripping, inserting and placing, and separating.